COLUMBIA RIVER WATER MANAGEMENT GROUP
MEETING NO. 503

1. ATTENDANCE

The following met at 9:30 a.m. on Thursday, April 13, 2000, in Rm 210, Custom House, Portland, OR.

Members or Alternates Present

Nancy Stephan, Bonneville Power Admin, Chair
Ted Day, US Bureau of Reclamation
Ken Yokoyama, Corps of Eng-NWD-NP
Walter Boyle, Federal Energy Regulatory Comm
Tom Fero, National Weather Svc-RFC
Don Laurien, National Weather Svc-RFC
Horold Opitz, National Weather Svc-RFC
Dan Moore, Nat'l Resources Conservation Svc
Doug McChesney, WA Dept Ecology
Tom Herrett, US Geological Survey, Portland

Members Not Present or Represented

----, Nat'l Marine Fisheries Svc
Jack Gakstatter, US Environ'l Protection Agy
Bruce McCammon, US Forest Service
Marvin Yoshinaka, US Fish and Wildlife Svc
----, Bureau of Land Management
Barry Norris, Oregon Dept of Water Res
Mike Turnipseed, Nevada State Engineer
Gordon Fassett, Wyoming State Engineer
Jack Stults, Montana Dept of Nat'l Res/Cons

Others Present

Stephanie Smith, BC Hydro
Roger Ross, Corps of Eng-NWP
Cathy Hlebechuk, Corps of Eng-NWD-NP
Peter Brooks, Corps of Eng-NWD-NP
Bruce Glabau, Corps of Eng-NWD-NP
Kurt Robinson, Corps of Eng-NWD-NP
Mike Jordan, Corps of Eng-NWD-NP
Bolyvong Tanovan, Corps of Eng-NWD-NP
Ed Magner, Corps of Eng-NWP
Bill Ondrechen, Idaho Dept Water Resources
Dusica Jevremovic, Fish Passage Center
Nengjin Liu, Idaho Power Co
Raquel Mills, Idaho Power Co.
Dana Reedy, NWPP
Tom Le, PSE-Bellevue
Tim Heizenrader, Enron
Doug Bornemeier, Pacificorp
Elain Prause, Pacificorp
Jolyne Lea, Nat'l Resources Conservation Svc
Stan Fox, Nat'l Resources Conservation Svc
Steve King, National Weather Svc-RFC

2. WEATHER SUMMARY

The Canadian weather briefing was presented by Stephanie Smith of BC Hydro. Temperatures in the Canadian Columbia River Basin were slightly below normal in October and 1 to 3 ^{o}C above normal from November to March. Monthly precipitation was above normal for the months of October, November, January and March and below normal for December and February. BC Hydro handouts are presented in Enclosure 1.

The US weather briefing was presented by Tom Fero of the National Weather Svc-RFC who characterized climate conditions at The Dalles as "abnormally normal" this year. There have been no consistently long wet

periods or dry periods this season at The Dalles. January to March temperatures at the Dalles were about 2 to 3 ^{o}F above normal. Precipitation conditions in the Columbia Basin was dryest in the south (in Idaho) and got wetter as you head north into Canada. For three mean indices, the seasonal precipitation for the Columbia above Grand Coulee was 111%, Snake at Ice Harbor was 95%, and the Columbia River at The Dalles 104% of normal (for their current report see their web site at http://www.nwrfc.noaa.gov/cgi-bin/r_fcst).

3. SNOW WATER RESOURCE AND SWSI

Stephanie Smith of BC Hydro presented the snow pack conditions in the Canadian Columbia. Much of the northern and southeastern Upper Columbia Basin has a SWE at 90-140% of normal. Areas of 60 to 90% of normal snowpack consists of the Okanagan (south western) basin and the east Kootenay Basin. Plots of seasonal SWE from October-July for Molson Creek (Upper Canadian Columbia), Barnes Creek (Lower Canadian Columbia, Arrow) and East Creek (West Kootenay, Duncan) were all near the historical mean. Brenda Mines SWE (Okanagan Region) followed the station average from January to March 31 but is starting dip in early April perhaps indicating the start of the freshet. Morrisey Ridge SWE (East Kootenay Region) is about 150-200 mm below normal.

Dan Moore of NRCS discussed US Columbia Basin snowpack conditions. Northern Columbia sub-basins have the best pack, with the BC portion above Arrow Lakes at 109% and the Kettle at 104%. The Kootenay went up 5% during March to the current 93%. With the Spokane at 98% and Pend Oreille at 91%, the Columbia above Grand Coulee holds a 103% snowpack. On average this basin area contributes 64% of the flow at the Dalles. In Washington, the North Cascades gained 4% to 96% and the Yakima gained 4% to 112%. The remainder of the Columbia, however, sustained losses up to 8%. In Idaho, the Clearwater stands at 99%, but further south the Salmon dropped 8% to 88% and the Boise/Payette dropped 6% to 88%. Central to southern Idaho snowpacks have dropped below 90%. The lowest snowpack in the Columbia is the 84% of the Snake headwaters. Oregon sustained minor losses, but snowpacks generally remain average or better. The Oregon Snake holds 118%, John Day 96%, and Deschutes 111%. The overall Columbia snowpack is 98.5%, and this year's graph is still the year of the past 40 that most closely follows the average line. Dan Moore's Enclosures can be found at:

http://www.wcc.nrcs.usda.gov/water/snow/colu_hist.pl?type=p&year=2000&narrative=4

ftp://162.79.124.23/support/snow/snowpack_maps/columbia_river/wy2000/cusn0004.gif

ftp://162.79.124.23/support/water/forecast_maps/columbia_river/wy2000/cust0004.gif .

Stan Fox of NRCS gave a discussion on Oregon snowpack conditions. The SWE in most of Oregon as of April 1 is about 90% to 110%, with the Willamette area and Mt Hood having the best snowpack being about 120% of average. The SWE in Southern Oregon is lowest with some areas below 70% of average as of April 1. Above normal temperatures in early April have diminished the southern Oregon snowpack by perhaps an additional 20% from April 1. Jolyne Lea of NRCS reported about a 10% decrease in snowpack since April 1 in the Rouge River Basin above Lost Creek and in the Applegate Basin.

4. STREAMFLOW

Stephanie Smith of BC Hydro gave the April through September volume runoff forecasts for the Canadian projects. Kootnenay Lake is about 96% of normal, Duncan, Slocan and Kinbasket are about 105% of normal. Arrow Local is about 117% of normal.

Tom Herrett of USGS gave the US streamflow conditions report. Accumulated runoff in the Pacific Northwest is generally in the normal range for the October to March period. For the month of March most index gages recorded flows in the below-normal to normal range. In Oregon, most index stations reported slightly below normal flows with the Wilson River on the northern Oregon coast trending higher than normal flows for the water year. Streamflow at the Washington index stations for the water year ranges from a low of 94% of the 30-year average to a high of 171 percent of average. In Idaho, the index stations recorded flows within 10 percent of normal with the exception Bruneau River near Hot Springs, ID, which is averaging 75% of normal for the water year. Flows increased during March for all the index stations in Idaho. The index stations in Montana also recorded an increase in flow for March and the accumulated runoff for the water year ranged from 82 to 133% of normal. The Columbia River at The Dalles index gage indicated little change in flow for March and the flow for the water year is at 117% of the 30-year average. This season's large flood event occurred during Thanksgiving weekend on the Oregon Coast. The Siletz River approached a 100-year event with nearby basins ranging from a 5- to 25-year event. Tom's handout can be found at: http://oregon.usgs.gov/data_dir/wmr_dir/wmr95.html.

5. RUNOFF VOLUME FORECAST SUMMARY

Tom Fero of the NWRFC gave a status on project inflows as of April 1. Observed inflows in the Kootenay Basin above Libby is 108% of normal, Queens Bay is 101%, Flathead is 94%, Clark Fork at St Regis is 84%, Pend Oreille Lake is 92%, Cour d' Alene Lake is 99%, and Columbia River at Grand Coulee is 104% of normal. In the Snake Basin, inflow to Palisades is 84% of normal, American Falls is 81%, the Middle Snake sub basins are 70%, the Boise, Payette, Weiser basin system is 90%, and the main sum point Snake at Weiser is 70% of normal. The Lower Snake is generally at 100% of normal in both Eastern Oregon and the Clearwater Basin. The Lower Granite January-July volume is at 90% of normal. The Yakima Basin is at 100%, the Deschutes Basin is 105%, and the Columbia River at the Dalles is 99% of normal. The NWRFC publishes a summary of the runoff volume forecasts for April 1 on their web site at http://www.nwrfc.noaa.gov/water_supply/2000/April/toc.shtml.

The Corps' forecasts for Libby and Dworshak are (Apr-Aug) 6.87 maf (108%) and (Apr-Jul) 2.80 maf (104%), respectively. Details of the Corps' forecasts are found at: http://www.nwd-wc.usace.army.mil/report/colriverflood.htm .

At the request of the Army Corps of Engineers, Dan Moore of NRCS gave a presentation on the new NRCS regression equations for Dvorshak inflow forecasts. The new regression equations was compared to the 1995 regression equations developed by Dave Garen and still used by the Corps of Engineer to determine Dvorshak flood control requirements. The snow stations used in the new regressions are Elk Butte, Pierce Ranger Station, Hoodoo Basin, Shanghai Summit and Crater Meadows. The regression equation also uses Elk River precipitation for the month of December, Dworshak observed average inflow, and the Southern Oscillation Index (SOI). The major difference between the new and old equation is the switch from Hemlock Butte to

Crater Meadows snow station. A plot of the new and old regression equation and observed volume runoff indicated that the two equations perform equally well.

6. RESERVOIR OPERATION

BC Hydro reservoir regulation was presented by Stephanie Smith. At the end of March 2000, Canadian Treaty storage was drafted to 1418 ksfd which is 372 above the TSR. Arrow outflow is fixed at 20 kcfs during April and May for the protection of Rainbow trout. As a result, treaty storage is expected to reach about 800 ksfd above TSR by the end of May. Mica is expected to fill to within 5 to 10 feet of full pool by late August, Arrow is expected to fill by the end of July. Duncan is presently empty and will pass inflow until the end of April before starting to fill, reaching full pool near the end of July. Kootenay lake reached a minimum level of 1734.4 ft on April 4. Kootenay Lake is forecast to peak at about 1748 ft in June.

Ted Day of USBR gave the status of Reclamation irrigation reservoirs. Most of the reservoirs had good carry over from last year, released stream maintenance flows during the winter until it was necessary to pass inflow at those projects that had flood control requirements. In the Upper Snake, the system is at 88% of capacity with Jackson and Palisades passing inflow until refill on May 1. American Falls is full and is ready for irrigation demands. In the Boise and Payette River Basins, the Payette system is currently at 73% full and the Boise River system is 79% of capacity. In Eastern Oregon the projects are full or are currently filling. In the Deschutes Basin, Prineville is full and Ochoco is filling. In the Yakima Basin, the system is about 69% of capacity with projects filling and following flood control criteria. Hungry Horse is at elevation 3503 ft, the April 30 flood control requirement, and will pass inflow until refill commences. Grand Coulee is at elevation 1255.5 and will draft about 1/day until it reaches its April 30 flood control target of 1239.6 ft. A summary of the status of USBR projects can be found at http://mac1.pn.usbr.gov/hydromet/denver.txt. Teacup Diagrams can be found in Enclosure 2.

Cathy Hlebechuk of the Reservior Control Center gave a status report on Corps of Engineers projects. Libby's March 31 elevation 2,337 ft and is 122 feet from full. Libby is releasing minimum flow until sturgeon flow operations commence in May or June. Albeni Falls has been passing inflow all winter and refill should commence sometime in May. Dworshak shifted 120 kaf of flood control storage to Grand Coulee this year and will be operated to meet their April 30 flood control requirement. The Lower Snake projects are in their lowest foot operation to attempt to increase the velocity in the river to facilitate juvenile fish passage downstream. Willamette projects started refilling February 1 and RCC has received a request from NMFS for fish flow targets starting in April. Cathy's summaries are on Enclosure 3. Ken Yokoyama of the Corps of Engineers gave a report of the flood control requirements for the Columbia River projects. The flood control requirements can be found at:
http://www.nwd-wc.usace.army.mil/cafe/forecast/sum00apr.PDF.

7. POWER OPERATIONS

Dana Reedy of the Northwest Power Pool reported that the Actual Energy Regulations (AERs) are showing all projects running at ECC excepts for those conditions where there is a not power requirement. Surplus firm energy load carrying capability is projected though the year. Weekly status reports with energy and reservoir graphs from the NWPP can be found at: http://www.nwpp.org/weeklyreport.htm .

Seattle City Light could not attend the CRWMG meeting but submitted handouts for the Skagit River projects. These handouts are on Enclosure 4.

8. FISHERIES

Dušica Jevremovic of the Fish Passage Center gave a status on fisheries activies on the Columbia and Snake Rivers. The FPC website can be found at http://www.fpc.org .

9. OTHER

Stan Fox discussed the budget outlook for NRCS and the snow survey and water supply forecasting program. The National Water Climate Center that runs the SNOTEL program took a major hit this year. Stan feels that his group will get by this year, but foresees problems in the future that include budget cuts and talk about a decommissioning plan.

Mike Jordan of the Corps of Engineers is updating the Project Data and Operating Limit Book. He will submit the new version to various agencies for review and comments.

10. BUSINESS MEETING

Don Laurien of the NWRFC discussed hydromet activities. The NWS and the Corps are coordinating to assign new IDs to Canadian sites.

Nancy Stephan discussed Committee Reports. The Forecasting Committee is looking for a new Chairperson. Lisa van der Heydt, the current Chair of the Forecasting Committee, is now taking over the Modified Flow Committee. Lisa will be collecting members in the next few months.

The next scheduled meeting of the CRWMG is the July travel meeting. Ted Day of USBR will be coordinating the trip and tentatively plans the meeting to occur July 12 and 13. Ted is proposing a trip to Hells Canyon on the Snake River and Arrowrock on the Boise River.

Ken Yokoyama
Acting for Roger L. Ross
Secretary

Enclosures:
1. USBR Project Summary
2. USACE Project Summary
3. Seattle City Light Project Summary

d:\DriveD\crwmg\minutes\503apr00.doc